PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)
3364P155

I hereby certify that this correspondence is being submitted electronically via EFS Web on the date shown below.

Aug. 28, 2009

Signature Marilyn Bass

Typed or printed name Marilyn Bass

Application No.	Filed
10/726,141	December 1, 2003
First Named Inventor	
Kyung-Hyun Park	
Art Unit	**Examiner**
2828	Tod Thomas Van Roy

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
NOTE: No more than five (5) pages may be provided.

I am the:

☐ applicant/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under of 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☒ Attorney or agent of record.
Registration Number 30,139

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

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August 28, 2009
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required.

☐ *Total of _____ forms are submitted.

Based on PTO/SB/33 (07-05) as modified by BSTZ (008/22/05 - WLR)
SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

REMARKS

In response to the Final Office Action mailed April 30, 2009 and the Advisory Action mailed August 6, 2009, and in advance of the filing of an Appeal Brief, the Applicant seeks reconsideration of rejected Claims 1-3, 5, 7, 8 and 10-14.

Claim Rejections under 35 U.S.C. §103

A. Claims 1-3, 5, 7, 8 and 10-11 stand rejected under 35 U.S.C. §103 as being unpatentable over Sartorius, et al. ("Sartorius," *Dispersive Self Q-Switching in Self-Pulsating DFB Laser*, IEEE 1997) in view of U.S. Patent No. 6,018,541 issued to Huang ("Huang") in view of U.S. Patent No. 5,177,758 to issued Oka, et al. ("Oka"). Applicants respectfully traverse this rejection.

Applicants submit that the cited references, in combination, do not disclose the recited DFB laser section, which includes "a complex-coupled diffraction grating and an active structure for controlling the intensity of laser light, to oscillate the laser light in a specific single mode independent of a phase variation of feedback laser light" and wherein "the complex-coupled grating of the DFB laser section is a loss-coupled grating," as recited in independent Claim 1. The Examiner alleges that Sartorius discloses a DFB laser section, wherein the strength and the phase of the feedback laser light can be controlled to vary the frequency of an optical pulse produced by the laser diode. The Examiner further alleges that Huang discloses "a loss-coupled grating, which longitudinally periodically varies both effective refractive index and loss," as recited in independent Claim 1. The Examiner further alleges that Oka discloses "wherein the guiding layer of the phase control section is arranged through butt-coupling such that its central axis accords with those of the active structures," as recited in independent Claim 1.

The Examiner asserts that it is an inherent function for a loss-coupled grating to longitudinally periodically vary effective refractive index and loss.

Applicants note that the Examiner relies on Sartorius and Huang for disclosing the limitations of "a complex-coupled diffraction grating and an active structure for controlling the intensity of laser light, to oscillate the laser light in a specific single mode independent of a phase

variation of feedback laser light" and wherein "the complex-coupled grating of the DFB laser section is a loss-coupled grating" in Claim 1. Applicants submit that Huang cannot be combined with Sartorius for teaching or suggesting the above limitations.

To establish a *prima facie* case of obviousness, the Examiner must set forth "some articulated reasoning with some rational underpinning to support the conclusion of obviousness." See, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007).

Huang discloses a DFB laser waveguide having two side-by-side regions, with one region (region A) having a gain-coupled diffraction grating structure, and another region (region B) having a loss-coupled diffraction grating structure (Fig. 3, col. 3, lines 25-35). Huang discloses that a standing wave is generated in region A and sustained in region B (col. 3, lines 35-55). Huang further discloses that if laser beams are reflected back and entered into region B through its output end, traveling waves will be generated in region B and the energy of the crests and troughs will be absorbed by region B (col. 3, lines 56-60). The DFB laser waveguide disclosed by Huang operates with a gain-coupled region (region A) coupled to a loss-coupled region (region B). There is no indication as to how the loss-coupled region would operate if it is coupled to a different region, e.g., the recited cavity. A person of ordinary skill in the art would understand that the physics of a laser device can change dramatically when a substructure of the laser device is combined with a substructure of another laser device. Thus, by combining substructures of different laser devices, the Examiner is engaging in improper hindsight reconstruction. There is no teaching or suggestion that the combined device would "oscillate the laser light in a specific single mode independent of a phase variation of feedback laser light," as recited in independent claim 1.

Further, Applicants believe that Huang is not combinable with Sartorius and Oka for the additional reason as follows. Sartorius discloses a self-pulsating DFB laser device. Oka discloses a single-mode oscillation semiconductor device. Huang discloses a DFB laser waveguide. However, the laser waveguide of Huang is neither self-pulsating nor oscillating when a feedback laser light enters region B of Huang. Huang discloses that if laser beams are reflected back and entered into region B through its output end, traveling waves will be generated in region B and the energy of the crests and troughs will be absorbed by region B (col. 3, lines

56-60). As a result, a feedback laser light entering region B of Huang will be absorbed and will not be oscillating (col. 3, lines 56-60 and Fig. 6). Thus, combining the loss-coupled grating in region B of Huang would change the principle of operation of the devices of Sartorius and Oka (See MPEP 2143.01 VI. THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE).

Additionally, Huang discloses that region B functions as a loss-coupled grating by absorbing energy at periodic intervals. The region B of Huang absorbs energy instead of oscillating the energy. There is no indication in Huang that the loss-coupled grating can be used in a device that oscillates laser light. Further, Huang does not disclose that the region B longitudinally periodically varies effective refractive index. The Examiner indicates that the peaks and troughs in region B of Huang contain different material. The Examiner further postulates that "this inherently forms a varied effect refractive index in the grating structure" (see, Advisory Action). Applicants submit that Huang merely discloses the use of alternating active layers and clad layers (Figure 2). However, there is no indication in Huang that the effective refractive index longitudinally periodically varies.

Thus, for at least the foregoing reasons, the cited references do not teach or suggest each of the elements of Claims 1 and its dependent claims. Accordingly, withdrawal of the rejection of Claims 1-3, 5, 7, 8 and 10-11 is requested.

B. Claim 12 stands rejected under 35 U.S.C. §103 as being unpatentable over Sartorius, Oka and Huang in view of U.S. Patent No. 5,841,799 issued to Hiroki, et al. ("Hiroki"). Applicants respectfully traverse this rejection.

Claim 12 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Sartorius, Oka and Huang do not teach or suggest each of the elements of Claim 12.

Hiroki does not supply the missing elements in Sartorius, Oka and Huang. Thus, Claim 12 is non-obvious over the cited references. Accordingly, reconsideration and withdrawal of the §103 rejection of Claim 12 is requested.

C. Claim 13 stands rejected under 35 U.S.C. §103 as being unpatentable over Sartorius, Oka and Huang in view of U.S. Patent No. 4,995,048 issued to Kuindersma, et al. ("Kuindersma"). Applicants respectfully traverse this rejection.

Claim 13 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Sartorius, Oka and Huang do not teach or suggest each of the elements of Claim 13.

Kuindersma does not supply the missing elements in Sartorius, Oka and Huang. Thus, Claim 13 is non-obvious over the cited references. Accordingly, reconsideration and withdrawal of the §103 rejection of Claim 13 is requested.

D. Claim 14 stands rejected under 35 U.S.C. §103 as being unpatentable over Sartorius, Oka and Huang in view of U.S. Patent No. 6,031,860 issued to Nitta, et al. ("Nitta"). Applicants respectfully traverse this rejection.

Claim 14 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Sartorius, Oka and Huang do not teach or suggest each of the elements of Claim 14.

Nitta does not supply the missing elements in Sartorius, Oka and Huang. Thus, Claim 14 is non-obvious over the cited references. Accordingly, reconsideration and withdrawal of the §103 rejection of Claim 14 are requested.

CONCLUSION

Applicants respectfully request that the Pre-Appeal Brief Conference Panel withdraw the rejection of the pending claims, for the reasons set forth above.